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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/771,545	RAGHAVAN ET AL.
	Examiner	Art Unit	
	Dennis Rosario	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>Rsp. Elct. 10/8/07</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-41</u> is/are pending in the application.

    4a) Of the above claim(s) <u>39 and 40</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-38 and 41</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>05 February 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Claims 39 and 40 are withdrawn from further consideration pursuant to 37 CFR

1.142(b) as being drawn to a nonelected Group II, there being no allowable generic or

linking claim. Election was made **without** traverse in the reply filed on 10/8/07.

Response to Amendment

2.   The amendment was received on 8/17/07. Claims 1-38 and 41 are pending.

Claim Rejections - 35 USC § 112

3.   Due to the amendment the 112 rejection of claim 4 is withdrawn.

Response to Arguments

4.   Applicant's arguments with respect to claim1-38 and 41 have been considered

but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

Claim 41is rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. Claim 41 is drawn to functional descriptive

material NOT claimed as residing on a computer readable medium.   MPEP

2106.IV.B.1(a) (Functional Descriptive Material) states:

"Data structures not claimed as embodied in a computer-readable medium are
descriptive material per se and are not statutory because they are not capable of
causing functional change in the computer."

"Such claimed data structures do not define any structural or functional
interrelationships between the data structure and other claimed aspects of the invention
which permit the data structure's functionality to be realized."

Claim 41, while defining a computer program, does not define a "computer-readable medium" and is thus non-statutory for that reasons. A computer program can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to correspond to a "computer-readable medium storing a computer program" in order to make the claim statutory.

"In contrast, a claimed computer-readable medium encoded with the data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory." - MPEP 2106.IV.B.1(a)

5.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7.   Claims 1-5,7-11,13-21,23-38 and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Allen et al. (US Patent 7,305,331 B2).

Regarding claim 1, Allen discloses a computer-implemented method of dynamically modeling and displaying a passage of <u>material or</u> information between at least two spatially distributed objects in a body, <u>comprising:</u>

a)   creating a first data set of entities ("elements" in col. 3, line 47) between which material (corresponding to "physical interactions" in col. 3, line 46) or information is transferred (via a "pathways" in col. 3, line 46);

b)   creating a second data set of channels (said pathways) connecting the entities;

c)   creating a third data set of types of material (one of which is said physical interaction) or information that each entity transfers via each channel;

d)   creating a dynamic map (or "Dynamic Pathway" as shown in fig. 15) that includes a list (shown in the upper right of fig. 15) of active entities, wherein the dynamic map is communicatively coupled (as shown in fig. 15) to the active entities so as to provide information (corresponding to said list in the upper right of fig. 15) thereto;

e)   using the dynamic map in conjunction with the first, second, and third data sets to perform a simulation (via fig. 1A,num. 10) of the transfer of material or information between entities; and

f)   outputting the simulation results (to fig. 1, num. 70).

Regarding claim 2, Allen discloses the method of claim 1, wherein at least one spatially distributed object (or said element) represents at least one of a group selected from: a tissue (or a molecule from "molecular physical interactions" in col. 3, line 46) of the body; and an organ of the body.

Regarding claim 3, Allen discloses the method of claim 1, wherein at least one spatially distributed object represents a device (or drug from "pharmaceutical therapies" in col. 3, line 52) used for medical intervention.

Regarding claim 4, Allen discloses the method of claim 1, wherein at least one spatially distributed object represents a material (or corresponding disease to said drug of claim 3, above) introduced into the body by accident.

Claim 5 is rejected the same as claim 4. Thus, argument similar to that presented above for claim 4 is equally applicable to claim 5.

Regarding claim 7, Allen discloses the method of claim 1, wherein at least one spatially distributed object is represented as having a spatial form (as shown in fig. 10A as a circle) and points of contact (represented as arrows in fig. 10A) with other objects.

Regarding claim 8, Allen discloses the method of claim 7, wherein at least one spatially distributed object has a geometrical description of a three-dimensional form ("three-dimensional" in col. 5, lines 61,62).

Claims 9 and 10 are rejected the same as claim 8. Thus, argument similar to that presented above for claim 8 is equally applicable to claims 9 and 10.

Claim 11 is rejected the same as claim 7. Thus, argument similar to that presented above for claim 7 is equally applicable to claim 11.

Regarding claim 13, Allen discloses the method of claim 1, wherein at least one spatially distributed object contains a numerical description (fig. 11:Elaspsed Time) of the condition of the at least one spatially distributed object.

Regarding claim 14, Allen discloses the method of claim 13, wherein the numerical description comprises lesions (or said diseases) of medically recognized types in a tissue represented by the at least one spatially distributed object.

Claim 15 is rejected the same as claim 13. Thus, argument similar to that presented above for claim 13 is equally applicable to claim 15.

Regarding claim 16, Allen discloses the method of claim 1, wherein a signal passed between a first spatially distributed object and a second spatially distributed object depends upon the internal state (as indicated by a label in fig. 15: JNK1) of the first spatially distributed object and the second spatially distributed object (both of which are represented in the circle of fig. 11), and upon an algorithmic specification (as shown in fig. 10B) characterizing the transfer capacity (or "amount of mRNA" in col. 9, line 5) between the first spatially distributed object and the second spatially distributed object.

Claims 17-19 are rejected the same as claim 16. Thus, argument similar to that presented above for claim 16 is equally applicable to claims 17-19.

Regarding claim 20, Allen discloses the method of claim 1, wherein a subset (fig. 15,num. 5120) of the at least one spatially distributed object, at least one algorithm (fig. 13,num. 5100) governing the evolution (as shown in fig. 14) of an internal state of the at least one spatially distributed object, and at least one passed signal are constructed by the user (corresponding to fig. 13: User Name) and connected to a digital implementation of the method by programming means (corresponding to fig. 13) provided with the digital implementation of the method.

Regarding claim 21, Allen discloses the method of claim 1, wherein at least one spatially distributed object (fig. 14: MEKK1) is grouped as a different spatially distributed object (corresponding to the tree structure of fig. 14 that is grouped with other kinds of objects), and at least one algorithm (corresponding to fig. 13,num. 5100) associated with the different spatially distributed object is run on data associated with the different spatially distributed object to approximate the effect (or interaction represented in fig. 14) of the at least one algorithm on the data associated with the at least one spatially distributed objects.

Regarding claim 23, Allen discloses the method of claim 1, wherein a geometrical description (or a circle corresponding to MEKK1 in fig. 14) may be modified (to a square in fig. 14) individually to better match a corresponding entity (corresponding to "Phosphorylation" in fig. 14) in a particular subject to create a new hypothetical example.

Regarding claim 24 Allen discloses the method of claim 1, further comprising:

a)   specifying the condition (fig. 18,num. 5154) of at least one spatially distributed object;

b)   running at least one associated algorithm (fig. 18, num. 5151); and

c)   reporting the results (via fig. 18,num. 5158).

Regarding claim 25, Allen discloses the method of claim 1, further comprising:

a)   specifying an initial condition (via fig. 18,num. 5154) of at least one

spatially distributed object;

b)   running at least one associated algorithm (fig. 18,num. 5157) while

continuing to intervene (represented as a highlight in the upper left of fig. 9) in the state

of the at least one spatially distributed object in real-time (since fig. 9 corresponds to a

said Elapsed Time in fig. 11); and

c)   observing results.

Regarding claim 26, Allen discloses the method of claim 1, further comprising:

a)   running at least one associated algorithm (fig. 1A,num. 10) on a system

that resides on a central server (fig. 1A,num. 5); and

b)   having a user (fig. 1A,num. 20) issue modification and simulation

commands over the Internet which are executed on the central server.

Regarding claim 27, Allen discloses the method of claim 1, further comprising:

a)   having a user obtain standard system data (fig. 41: "Has Attributes"); and

b)   having the user issue modification (fig. 41: "Modifies Attributes") and

simulation commands that are executed on a computer.

Claim 28 is rejected the same as claim 8. Thus, argument similar to that

presented above for claim 8 is equally applicable to claim 28.

Regarding claim 29, Allen discloses the method of claim 28, where the three-dimensional graphical image is color-coded (as shown by the legend in the upper right of fig. 15).

Claim 30 is rejected the same as claim 13. Thus, argument similar to that presented above for claim 13 is equally applicable to claim 30.

Regarding claim 31, Allen discloses the method of claim 24, where a second program (fig. 18,num. 5160) issues modification and simulation commands and receives data (via fig. 18,num. 5161) describing the results of system computations as input for further computations (or more searching via fig. 18,num. 5161) by said second program.

Claim 32 is rejected the same as claim 1. Thus, argument similar to that presented above for claim 1 is equally applicable to claim 32.

Regarding claim 33, Allen discloses the method of claim 1, wherein the library data set (fig. 1A,num. 80) further maintains interaction types and characteristic times for each interaction type.

Regarding claim 34, Allen discloses the method of claim 1, further comprising:

a)   enabling a user to input initial conditions (via fig. 18,num. 56151) for the entities between which material or information is transferred, and

b)   wherein performing the simulation includes using the initial conditions as part of the simulation (said a login is required for the simulation).

Claim 35 is rejected the same as claim 31. Thus, argument similar to that presented above for claim 31 is equally applicable to claim 35.

Regarding claim 36, Allen discloses the method of claim 1, further comprising:

a)   creating a data set (corresponding to fig. 18,num. 5158) of the response of each entity to material or information received via each channel.

Regarding claim 37, Allen discloses the method of claim 36, wherein creating a data set of the response includes transfer of the same or other material or information to other entities via said channels (via said tree structure in fig. 14 that transfers MEKK1 along the branches of the tree structure).

Claim 38 is rejected the same as claim 37. Thus, argument similar to that presented above for claim 37 is equally applicable to claim 38.

Claim 41 is rejected the same as claim 1. Thus, argument similar to that presented above for claim 1 is equally applicable to claim 41 except for the additional limitation of a medium as disclosed in Allen in fig. 1A.num. 80.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et

al. (US Patent 7,305,331 B2) in view of Bard (US Patent 6,210,967 B1).

Regarding claim 6, Allen teaches the method of claim 6 6, wherein at least one

spatially distributed object (or "drug" in col. 41, line 65) represents material introduced

into the body, but does not each the claimed "cosmetic purposes." However, Allen

teaches "drug design" in col. 41, line 65.

Bard teaches "drug design" in col. 1, line 40 for "cosmetic uses" in col. 1, lines

46,47.

It would have been obvious at the time the invention was made to one of ordinary

skill in the art to modify Allen's teaching of drug design with Bard's teaching drug design

with cosmetic uses, because Bard's cosmetic uses prevents "abnormal growths or

scarring" in col. 1, lines 47,48.

10.   Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et

al. (US Patent 7,305,331 B2) in view of Le Pennec et al. (US Patent 6,836,569 B2).

Regarding claim 12, Allen teaches the method of claim 7, wherein at least one

spatially distributed object (or said molecule) has a geometrical description (or said

circle). Allen does not teach the claimed "one-dimensional curve," but teaches "how an

object will move" in col. 29, line 9.

Le Pennec teaches a motion of an object or trajectory that is one-dimensional on

a two-dimensional plane as shown in fig. 2., num. 1.

It would have been obvious at the time the invention was made to one of ordinary

skill in the art to modify Allen's teaching of objection motion with Le Pennec's trajectory

of objects, because Le Pennec's teaching provides a "stable foveal representation (col.

3, lines 66 to col. 4, line 1)" of the one dimensional signal or trajectory.

11.   Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et

al. (US Patent 7,305,331 B2) in view of Priem (US Patent 5,003,497).

Regarding claim 22, Allen teaches the method of claim 1, wherein a geometrical

description (fig. 15,num. 5120) is modified (via "navigate" in col. 5, line 63), but does not

teach the claimed "by a global transformation specifying a correspondence between a

reference coordinate space of the method and a coordinate space appropriate to a

particular subject". However, Allen teaches that a three-dimensional object can be

viewed from "different vantage points and perspectives" in col. 5, line 67.

Priem teaches viewing three-dimensional objects on a two-dimensional screen

using the claimed global transformation (using a "viewing transforms" in col. 1, line 47

specifying a correspondence between a reference coordinate space (or a "view

reference coordinate system" in col. 1, line 43) of the method and a coordinate space

appropriate to a particular subject (or "world coordinate system" in col. 1, line 42).

It would have been obvious at the time the invention was made to one of ordinary

skill in the art to modify Allen's teaching of different vantage points and perspectives

with Priem's teaching of viewing transforms, because Priem's teaching is "well known"

in col. 1, line 38.

Conclusion

12.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Shimada et al. (US Patent 6,119,065) is pertinent as teaching a method of

simulating a map with and origin and destination zones with roads or sidewalks or

tracks or passageways between for pedestrians, vehicles, trains and airplanes to

commute across the map. This reference is applicable to claim 1.

13.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dennis Rosario whose telephone number is (571) 272-

7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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